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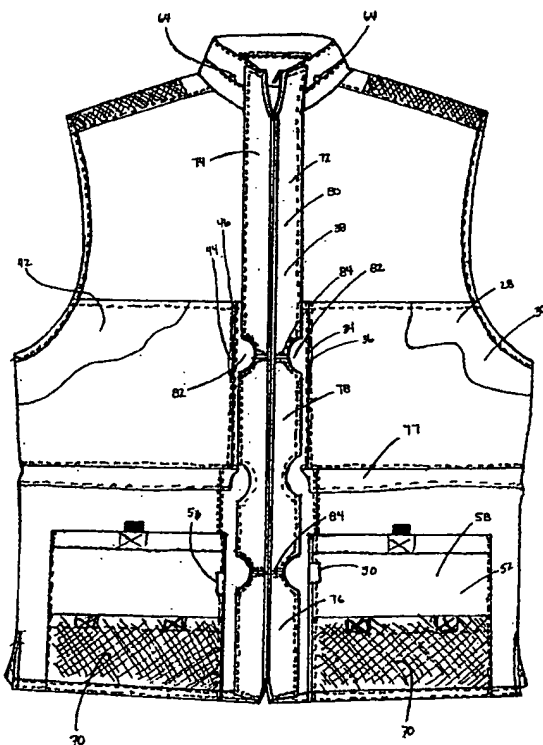
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(54) Title: PERSONAL ASSISTANT GARMENT



(57) Abstract: The present invention relates to clothing and more particularly to a garment designed to hold portable electronic devices and other items such as wallets, keys, etc. The garment has at least one and preferably more than one pocket to hold an electronic device, i.e., cell phone. Each pocket includes an internal passageway (34, 36, 44, 46) that leads to an interior side of the vest (10). The garment also includes a central passageway system (38) which includes two passageways that are on opposite sides of the central opening of the garment. The passageways are segmented and allow for the installation of wires. The garment further includes a horizontal passageway (77) that passes from the left side of the interior of the vest (10) around the central portion of the back to the right side of the vest (10). The central passageway system (38), one or more wires can be removed and installed from an individual passageway segment without disturbing other wires neatly fastened in other passageway segments.

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PERSONAL ASSISTANT GARMENT

This application claims priority from provisional application number 60/281,877 filed on April 5, 2001.

The present invention relates to clothing and more particularly to a garment designed to hold portable electronic devices, such as cell phones, pagers, PDAs, and other items such as wallets, keys, glasses, and allowing use of the devices without removing them from the garment by incorporating conduits and passageways therein to interconnect the devices.

Background of the Invention

Recently, the use of portable electronic devices has increased dramatically. These devices include, but are not necessarily limited to, cellular/digital phones and/or other similar wireless communication devices such as pagers, personal digital assistants (commonly referred to as PDAs, Palm Pilots® and/or Pocket-PCs), microcomputers, eBook readers, MP3 players, recording devices, Walkman® and other similar portable listening devices, portable television sets, portable internet devices, radar detectors, pedometers, remote control units, portable global positioning satellite (GPS) devices, two-way radios, cameras and video recorders/camcorders (including digital cameras and video recorders/camcorders), calculators, and/or miniature flashlights. Moreover, there are a multitude of accessories related to such portable electronic devices, e.g., modems, portable printers, portable keyboards, memory cards/discs and related devices, portable scanners,

batteries and other energy sources including charging and AC adapters, cradles, cables, modules, earphones/headphones/headsets and other listening devices, microphones, recording devices, software, stylus, among others. This change has corresponded with a change in the dress code. No longer are
5 business suits the uniform of choice. Now people dress much more casually, often wearing slacks or a skirt, as applicable, and a shirt. Moreover, due to health and safety concerns, among other things, people are now using hands-free listening and talking devices at an increasing rate.

Many business activities now require individuals to carry and to use
10 efficiently a large assortment of equipment and supplies, i.e. the devices listed above. Currently, such articles are carried in various bags, pockets, cartons and cases. As a result of relatively unorganized carriage of this equipment and supplies, their use consumes excessive time and energy. Additionally, recharging of the batteries and care of equipment when not in use also
15 consumes a large portion of time that could be decreased with an effective tool for handling and using such items.

Usually, vest or like articles must be particularly sized for an individual user, especially if there are any internal interconnected parts. To date, however, no garment exists designed specifically to allow a person to use
20 existing portable electronic devices without the incorporation of any hardware that may be required for the connection to other devices while wearing the garment at the same time as also being fashionable and versatile enough to

wear in the average workplace setting, such as an office. Additionally, none provide for carriage of numerous devices in ways that can be used efficiently with minimal stress on the lower back of a wearer's body, and that may be adjustably fitted for multiple users while still remaining functionally interconnected. The present invention addresses these concerns.

Summary of the Invention

The present invention is particularly directed to a garment that supports and interconnects portable electronic devices. Although initially designed as a vest, portions of the garment in the present invention, most notably the passageways and pockets, also can be fabricated into a shirt, coat or jacket. The vest includes two exterior breast pockets, two hidden breast pockets, four exterior abdomen pockets and four interior abdomen pockets that are provided with internal openings to allow the passage of connections from back to back pockets. The vest also includes closable passageways that allows for the interconnectivity between the breast and abdomen pockets and the right and left side of the vest. The passageways also connect the neck area of the garment to the pockets to allow for the attachment of listening and microphone devices.

Other features of the invention will become apparent from the drawings and the detailed description of the invention is to provide for a garment that can allow for a plurality of wires to be routed from one pocket to another and to the neck area of the garment to allow for the interconnection of

portable electronic devices and to keep the wires organized and hidden out of site.

A further object of the invention is to provide a computer housing of cloth material that may be worn by the user without restricting the user's body movement and the ability to use such equipment while wearing the garment.
5 My garment can provide an ergonomic housing for a digital computer or for other electronic equipment that one may wish to carry about while allowing the user relatively unrestrained body movement.

Further, in some aspects, the garment can be provided with compartmentalized pockets to retain beverages and prevent contact between
10 electronic devices, and can also be structured to fit a wide range of individuals by an adjusting waist structure. My garment can enable ordered and continued interconnection of internal features despite the adjusted size, thereby enabling multiple users to wear the same vest.

Brief Description of the Drawings

FIG. 1 is an elevational view showing the front exterior side of the vest of the present invention.

FIG. 2 is an elevational view showing the front interior side of the vest.

FIG. 3 is an elevational view showing the rear exterior side of the vest.

FIG. 4 is an elevational view showing the rear interior side of the vest.

FIG. 5 is an elevational view showing the right breast pocket.

FIG. 6 is an elevational view showing a right hidden shoulder pocket.

FIG. 7 is an elevational view showing a left hidden shoulder pocket on the interior side of the vest.

FIG. 8 is an elevational view showing the central passageway system.

5 FIG. 9 is an elevational view of the right half of the vest with part of the central passageway in the open position to accept wires from the pockets.

Detailed Description of the Invention

For the purpose of promoting an understanding of the principles of the invention, references will be made to the embodiment illustrated in the drawings. Specific language will also be used to describe the same. It will, nevertheless, be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention illustrated herein being contemplated as would normally occur to one skilled in the art to which the invention relates.

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One of the features of some of our proposed garments is that they can be freed of all electronic components and hardware so that it can be laundered in an ordinary fashion.

Another feature is that my garment allows a plurality of wires to be routed from one pocket to another and to the neck area of the garment to allow for the interconnection of portable electronic devices and to keep the wires organized and hidden out of site.

20

A still further feature is providing a garment that may be worn by the user without restricting the user's body movement and the ability to use such equipment while wearing the garment. My garment can provide an ergonomic housing for a digital computer or for other electronic equipment that one may wish to carry about while allowing the user relatively unrestrained body movement.

A preferred embodiment of a portable electronics vest 10 of the present invention is shown in FIG. 1 with the vest in the closed position, which is accomplished by using a zipper or other fastener known to those skilled in the art. The vest 10 can be fabricated out of a variety of materials but preferably it is fabricated out of nylon, cotton, polyester microfiber or a polyester wool blend. The vest 10 which has one or more pockets is shown with six visible exterior pockets, a right breast pocket 12, a left breast pocket 14, a right abdomen zipper pocket 16, a left abdomen zipper pocket 18, a right privacy zipper pocket 20, a left privacy zipper pocket 22 and a raised privacy collar 23.

The right breast pocket 12 is rectangular in shape and includes a top flap 24 that allows access to the opening 26 of the pocket. The flap 24 of the right breast pocket 12 is held closed by the use of Velcro®, a loop type fastener or a snap, but other types of fasteners can be used known to those skilled in the art, such as a zipper or buttons. The flap 24 can be opened to allow for the ingress and egress of personal electronic devices such as

cellular/digital phones and/or other similar wireless communication devices such as pagers, personal digital assistants (commonly referred to as PDAs, Palm Pilots® and/or Pocket PCs), microcomputers, eBook readers, MP3 players, recording devices, Walkman® and other similar portable listening devices, portable television sets, portable internet devices, radar detectors, pedometers, remote control units, portable global positioning satellite (GPS) devices, two-way radios, cameras and video recorders/camcorders (including digital cameras and video recorders/camcorders), calculators, and/or miniature flashlights. Within the right breast pocket 12 is a dividing flap 28, shown in Fig. 2, which creates a hidden pocket 30. The hidden pocket 30 allows for the placement of two electronic devices in one pocket without physical contact that may cause damage. The right breast pocket 12 has a bellow 32, shown in Fig. 1, located around the periphery of the pocket to allow expansion in an accordion type fashion, which accommodates thicker electronic devices. The hidden pocket 30 can be accessed through the side of the pocket through opening 33, as shown in Fig. 5, on the inside of the vest. The opening 33 is held in the closed position by a Velcro® fastener. Both the hidden pocket 30 and the breast pocket 12 include passageways 34 and 36 that allow for the passage and routing of electrical wires and connectors. The passageways 34 and 36 allow an electronic device in the right breast pocket 12 to be connected to an electronic device in the hidden pocket 30 or for the wiring from the pockets to enter the central passageway system 38.

The left breast pocket 14 also includes a flap 40 and a hidden pocket 42 and operates in the same fashion as the right breast pocket 12. The left breast pocket 14 also includes passageways 44 and 46, which allow for the connection of electrical devices from the left breast pocket 14 to the hidden pocket 42 or allows the wiring from the pockets to enter the central passageway system 38.

The right abdomen pocket 16, as shown in Fig. 1, is accessible through a sideways oriented flap 48 that held closed by the use of a zipper, Velcro®, loop type fastener or a snap, but other types of fasteners can be used known to those skilled in the art, such as buttons. The right abdomen pocket 16 is dimensionally a larger pocket than the breast pockets 12 and 14 and is designed to accommodate larger electronic devices. The right abdomen pocket 16 shares a passageway 50, shown in Fig. 2, with a right interior abdomen pocket 52 to allow interconnectivity of the two pockets and allows the wiring from the pockets to enter the central passageway system 38. Inside the right abdomen pocket 16, the inner lining (not shown) extends upwardly, behind and beyond the right breast pocket 12 to the collar, which allows devices with shorter wire leads to bypass the central passageway system 38, enabling the wiring to be directly connected to the right breast pocket 12.

The left abdomen pocket 18, as shown in Fig. 1, also is accessible through a sideways oriented flap 54 and operates in the same fashion as the right abdomen pocket 16. The left abdomen pocket 18 also includes

passageway 56, shown in Fig. 2, which allows for the connection of electrical devices from the left breast pocket 18 to a left abdomen interior pocket 58 , shown in Fig.2, or allows the wiring from the pockets to enter the central passageway system 38. Inside the left abdomen pocket 18, the inner lining (not shown) extends upwardly, behind, and beyond the left breast pocket 14 to the collar which allows devices with shorter wire leads to bypass the central passageway system 38, enabling the wiring to be directly connected to the left breast pocket 14. The wiring can be inserted from the pockets 16 and 18 through the lining of the vest instead of through the central passageway system 38.

The right privacy zipper pocket 20 and left privacy zipper pocket 22 are located below the right and left abdomen pockets 16 and 18 and are provided with zippers 60 and 62 to seal off the pockets to prevent the accidental loss of batteries, monies or keys.

The raised privacy collar 23, as shown in Fig. 1, is connected to the central passageway system 38 and is designed to accommodate a microphone, headset and/or earbuds that can be attached to one of the microphone, headset , and/or earbuds clips 64, shown in Fig. 2, located on the inside of the collar 23. The clips 64 are shown as elastic loops but other types of retaining devices can also be used such as clips, tabs or buttons or others known to those skilled in the art. The collar 23 conceals the microphone to protect it from the weather elements and reduce the amount of wind noise interference.

The clips 64 can also be used to route a pair of earphones so that the user of the vest can conduct private phone conversations and/or listen to music. The sides of the vest 10 include slits 66, shown in Fig. 1, and adjustment tabs 68 that allow for a more uniform fit of the vest 10 to adjust to the individual user.

5 These adjustments allow for the broadening or narrowing of the abdominal region and the bottom portion of the vest 10 to flair to overlap the pants of the user.

The pockets also include dividers (not shown) which have a vertical oriented strip of Velcro® connected on the inside walls of the pocket and are

10 used to hold beverages and prevent contact between electronic devices. The Velcro® strip, when closed compartmentalizes the pockets by adjoining the inner and outer walls of the pocket, which prevent beverages from tipping over and shifting around.

The inside of the vest 10, shown in Fig. 2, includes two mesh pockets

15 70 located on either side of the central opening of the vest to accommodate spare batteries, extra wiring, disks, adapters and the like. The inside of the vest 10 includes the central passageway system 38 or Personal Area Network (P.A.N.), which is comprised of two vertically extending passageways 72 and 74 and a horizontally extending passageway 77 that extends from the right

20 side, around the back and to the left side of the garment 10. The conduits consist of a fabric flap that is fastened along a first edge 73 to the vest and releasably attached to the vest along the second edge 75. The passageways

can be opened and closed easily to allow for the installation and removal of electrical wires and connectors. The conduits are held in the closed position by use of Velcro®, 90, as shown in Fig. 9, which is placed along the edge 75 of the flap, but other types of fasteners can be used by those skilled in the art, such as zippers, or a hook and loop type fastener. The vertically extending passageways 72 and 74 are divided into three segments, a lower segment 76, a middle segment 78 and an upper segment 80. The passageways 72 and 74 also include a plurality of c-shaped outlets 82 located at the segment intersections 84. The c-shaped outlets 82 allow for a large group of wires to enter the passageway and maintain them in the location of the segment intersections 84. Without the outlets 82, the wires tend to ungroup and become unorganized. The upper segment 80 allows interconnection of the collar 23 with the middle segment 78, the hidden pockets 40 and 42, and the right and left breast pockets 12 and 14. The middle segment 78 allows interconnection of the upper segment 80, the hidden pockets 40 and 42, the right and left breast pockets 12 and 14, the interior abdomen pockets 52 and 58, the exterior abdomen pockets 16 and 18, the lower segment 76 and the horizontal passageway 77. The lower segment 76 interconnects the right and left interior abdomen pockets 52 and 58, the exterior abdomen pockets 16 and 18, the middle segment 78. The horizontal passageway 77 passes from the left side of the interior of the vest around the central portion of the back, shown in Fig. 4. The horizontal passageway 77 allows wires from pockets on the right side of the vest to be

5 routed to the left side of the vest so that there is interconnectivity between the pockets. With this arrangement, one or more wires can be removed and installed from an individual segment without disturbing other wires neatly fastened in other passageway segments. This arrangement allows wiring from a first electronic device such as a MP3 player to be removed from the garment without disturbing the wiring of other electronic devices such as cellular phones or personal digital assistants. The pockets are designed to allow various types of electronic devices to be placed within them and interconnected with any other device in any other pocket of the vest. Since
10 the vest can be voided of all electronic hardware and wiring harnesses, the vest can be washed in a normal manner.

To interconnect two electronic devices, wherein a first electronic device, such as a cell phone, is located in the right breast pocket 12 and a second electronic device, such as a personal digital assistant (PDA) is located
15 in the left abdomen pocket 18, the wiring for the phone is inserted into the right breast pocket 12, through passageway 34. The middle segment 78 is opened and the wiring is inserted and routed downward until the wiring is positioned at the C-shaped outlets 82. Horizontal passageway 77 is opened and the wiring is inserted and routed around the back of the garment until it
20 arrives at the middle segment 78 on the opposite side of the central opening of the vest. The middle segment 78 is opened and the wiring is inserted and routed downward and inserted through passageway 50 into the left abdomen

pocket 18. The PDA can then be inserted into the abdomen pocket 18 and connected to the wiring, interconnecting the phone with the PDA. If the user wants to connect a microphone and earbuds to the collar 23, it can be accomplished without disturbing the interconnection between the phone and the PDA. The microphone and earbuds are first attached to the collar clip 64. Upper segment 80 is opened and the wires for the microphone and earbuds are inserted and routed downward and inserted through passageway 36, allowing the wires to be connected with the phone.

Various features of the invention have been particularly shown and described in connection with the illustrated embodiment of the invention; however, it must be understood that these particular arrangements merely illustrate, and that the invention is to be given its fullest interpretation within the terms of the appended claims. The invention need not encompass all of the attributes described herein. For instance, I intend to cover:

1. An electronic device personal assistant garment having:
 - a plurality of electronic device holding pockets;
 - a plurality of electronic wires, that connect said pockets, said wires being independently and readily removable from said garment to permit said garment to be cleaned or to allow said wires to be interchanged.
2. Copy Cl ____; or
3. Copy Cl ____; or

4. The articles specifically set forth in my dependent claims which are not disclosed in the prior art.

Claims

1. An electronic device personal assistant garment having:
 - at least one of electronic device holding pocket;
 - at least one electronic wire that is connected to said pocket, said wire being independently and readily removable from said garment to permit said garment to be cleaned or to allow said wire to be interchanged with another electronic wire.
2. The personal assistant garment of claim 1, wherein said holding pocket includes an interior pocket passageway to allow for the passage of wires from said pocket to an interior side of said garment.
3. The personal assistant garment of claim 1, comprising:
 - at least one garment pocket that has at least one divider positioned within said
 - at least one garment pocket adapted to compartmentalize said at least one garment pocket to form one or more smaller garment pockets to hold electronic or non-electronic items.
4. The personal assistant garment of claim 3, wherein said divider includes fasteners to allow
said at least one garment pocket to be divided or undivided.
5. The personal assistant garment of claim 1, wherein said garment at
least two electronic

device holding pockets, and includes passageways for retaining electronic wires, said passageways constructed to allow the passage of said electronic wires to and from each of said at least two electronic device holding pockets.

6. The personal assistant garment of claim 5, wherein said passageways are segmented.

7. The personal assistant garment of claim 6, wherein said segmented passageways include closable flaps for retaining wires, said flaps allowing opening of individual portions of said passageways allowing removal of some wires without disturbing other wires.

8. The personal assistant garment of claim 5, wherein each of said at least two pockets, each of said electronic device holding pockets having an opening to allow for the ingress and egress of one of said electronic devices and a pocket passageway to allow for the passage of wires from each of said pockets to an interior side of said garment; and

a segmented passageway having closable flaps for retaining the wires, said passageway constructed to allow the passage of the wires from one of said pockets through said passageway to another of said pockets, allowing the interconnection of the electronic devices.

9. The personal assistant garment of claim 8, wherein said at least two pockets further include at least one divider positioned within one of said at least two pockets adapted to compartmentalize said at least one

of said two pockets to form one or more smaller pockets to hold electronic or non-electronic items.

10. The personal assistant garment of claim 9, wherein said divider includes fasteners to allow said at least one of said two pockets to be divided or undivided.
11. An electronic device garment wiring passageway system for containing wiring in a garment of clothing comprising:

at least one passageway having at least two segmented flaps fastened along a first edge of said flaps to said garment and releasably attached to said garment along a second edge; said flaps including fasteners along said second edge to secure said flaps to said garment and allowing said flaps to open for the inclusion of the wiring;

said at least one passageway further including c-shaped outlets located at intersections formed by said segmented flaps adapted to group the wiring;

whereby said flaps can be selectively opened and closed to allow for the placement of the wiring.
12. The electronic device garment wiring passageway system of claim 11, wherein said wiring passageway system includes a second passageway, non-parallel to said at least one passageway.
13. The electronic device garment wiring passageway system of claim 12, wherein said second passageway includes a flap fastened to said garment

along a first edge and releasably attached to said garment along a second edge.

14. The electronic device garment wiring passageway system of claim 13, wherein said flap includes fasteners to secure said flap to said vest to allow said flap to open for the inclusion of wiring.

15. An electronic device personal assistant garment for containing electronic equipment comprising:

a first exterior pocket including an opening to allow for the ingress and egress of the electronic equipment, said exterior pocket further including a first pocket passageway to allow for the passage of wiring to an interior side of said garment;

a second exterior pocket positioned behind said first exterior pocket including an opening to allow for the ingress and egress of the electronic equipment, said exterior pocket further including a second pocket passageway for the passage of wiring to said interior side of said garment;

said first exterior pocket and said second exterior pocket are interconnected by said first and second pocket passageways to allow for the passage of the wiring from said first exterior pocket to said second exterior pocket.

16. The garment passageway system of claim 11 comprising:

a first passageway having at least two segmented flaps fastened along a first edge to said garment and releasably attached to said garment along a

second edge; said flaps including fasteners to releasably secure said flaps to said garment and allowing said flaps to open for the inclusion of the wiring;

said first passageway further including c-shaped outlets located at intersections formed by said flaps adapted to group the wiring;

a second passageway, nonparallel to said first passageway, having a flap fastened to said garment along a first edge and releasably attached to said garment along a second edge; said flap of said second passageway including fasteners to secure said flap to said garment and allowing said flap to open for the inclusion of wiring.

17. An electronic device personal assistant garment for containing electronics comprising:

a pocket including an opening to allow for the ingress and egress of the electronics, said pocket further including a pocket passageway to allow for the passage of wiring to an interior side of said garment;

said pocket further including an inner lining positioned within said pocket, said inner lining extending upwardly to a collar of said garment enabling wiring to be routed and connected to said collar;

at least one passageway having segmented flaps fastened along a first edge to said garment and releasably attached to said garment along a second edge; said flaps including fasteners to secure said flaps to said garment and allowing said flaps to open for the inclusion of the wiring.

18. The personal assistant garment of claim 5 wherein

one of said at least two pockets includes an opening to allow for the ingress and egress of the electronic equipment, said one of said at least two pockets further including a pocket passageway to allow for the passage of wiring to an interior side of said garment;

another of said at least two pockets includes an opening to allow for the ingress and egress of the electronic equipment, said another of said at least two pockets further including a pocket passageway to allow for the passage of wiring to an interior side of said garment;

a connecting passageway, said connecting passageway being connected to both of said two holding pockets;

a first wire extending from said one of said at least two pockets through its pocket passageway, through said connecting passageway, through said another of said at least two pockets passageway and connecting said two pockets.

19. The personal assistant garment of claim 5 wherein

one of said at least two pockets includes an opening to allow for the ingress and egress of the electronic equipment, said one of said at least two pockets further including a pocket passageway to allow for the passage of wiring to an interior side of said garment;

another of said at least two pockets includes an opening to allow for the ingress and egress of the electronic equipment, said another of said at least two pockets further including a second pocket passageway to allow for the passage of wiring to an interior side of said garment;

a first wire extending from said one of said at least two pockets through a first passageway to a collar retainer on said garment, one end of said first wire having a microphone and/or headphone device,

a second wire extending from said another of said at least two pockets through said first passageway through said second passageway to said another of said at least two pockets, said second wire having electronic device connectors on each end thereof,

said wires being independently removable from said pockets to allow said garment to be cleaned.

20. An electronic device personal assistant vest for containing at least two electronic devices and wiring comprising:

at least one breast pocket having a top opening allowing the ingress and egress of said electronic devices, said at least one breast pocket further including a closable external flap with a fastener and an internal breast pocket passageway to allow for the passage of wiring to an interior side of said vest;

said at least one breast pocket further including a secondary pocket positioned behind said at least one breast pocket, said secondary pocket

including an opening to allow for the ingress and egress of said electronic devices, said secondary pocket further including a secondary pocket passageway for the passage of wiring to said interior side of said vest and/or said at least one breast pocket;

at least one abdomen pocket having a side opening allowing the ingress and egress of said electronic devices, said at least one abdomen pocket including a closable opening with a fastener and an internal abdomen pocket passageway to allow for the passage of wiring to said interior side of said vest, said pocket further including an inner lining positioned within said pocket, said inner lining extending upwardly to a collar of said vest enabling wiring to be routed and connected to said collar;

a first passageway oriented substantially parallel to a central opening of said vest, said first passageway extending substantially the length of the vest and having at least two segmented flaps, said flaps fastened along a first edge to one side of said central opening and releasably attached to said vest along a second edge, said flaps including fasteners to releasably secure said flaps to said vest and allowing said flaps to open for the inclusion of wiring, said first passageway including c-shaped outlets located at intersections formed by said flaps adapted to group the wiring;

a second passageway, non-parallel to said first passageway, having a flap fastened to said vest along a first edge and releasably attached to said vest

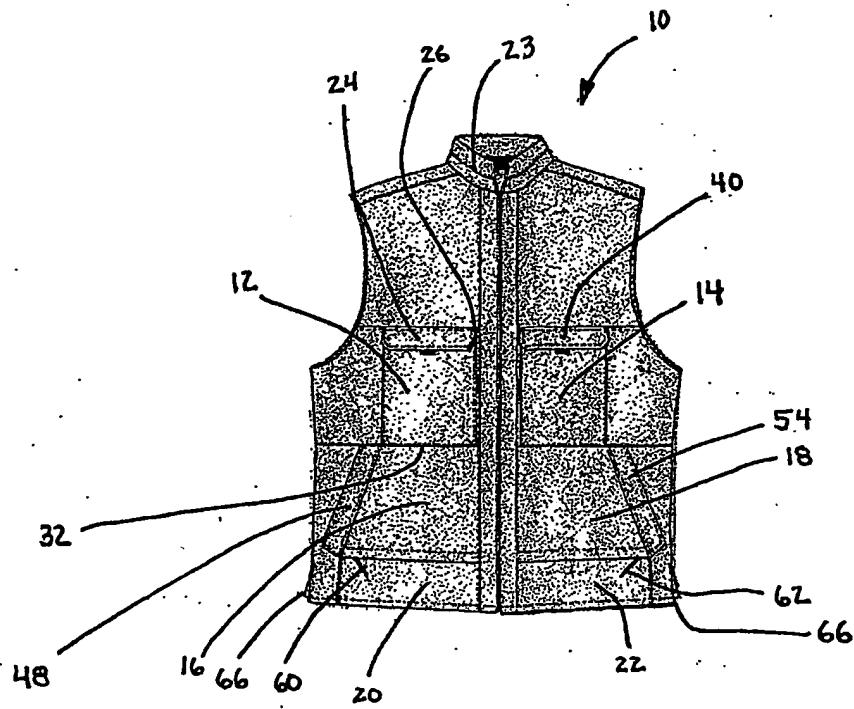
along a second edge, said flap of said second passageway including fasteners to secure said flap to said vest and allow said flap to open for the inclusion of wiring;

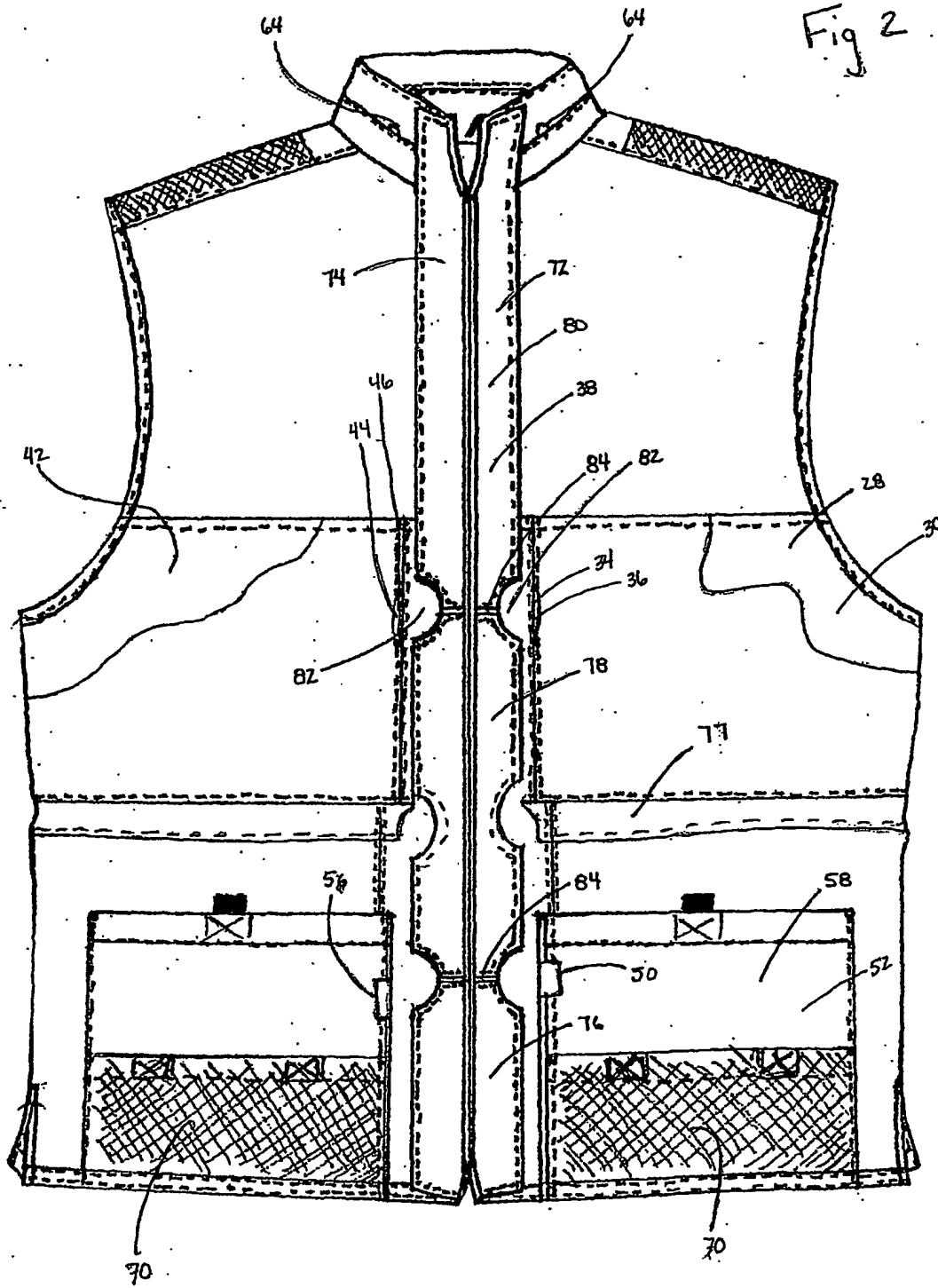
a first wire extending from said breast pocket through said breast pocket passageway to a collar retainer on said vest, one end of said first wires having a microphone and/or headphone device;

a second wire extending from said breast pocket through said breast pocket passageway through said first passageway, through said abdomen pocket passageway to said abdomen pocket, said second wire having electronic device connectors on each end thereof,

said wires being independently removable from said pockets to allow said garment to be cleaned.

Fig. 1





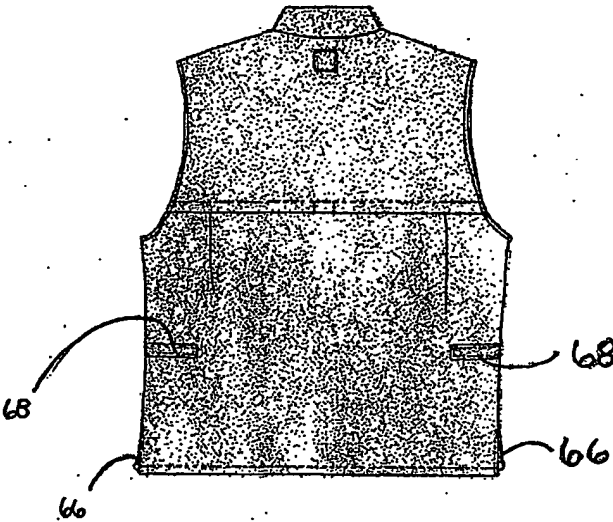


Fig. 4

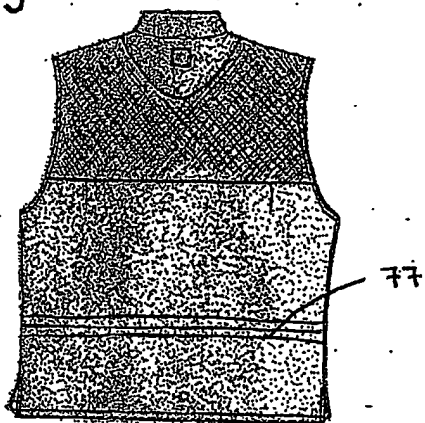


Fig. 5

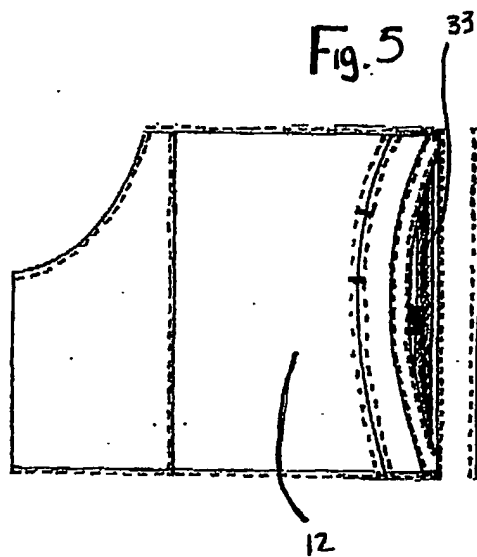


Fig. 6

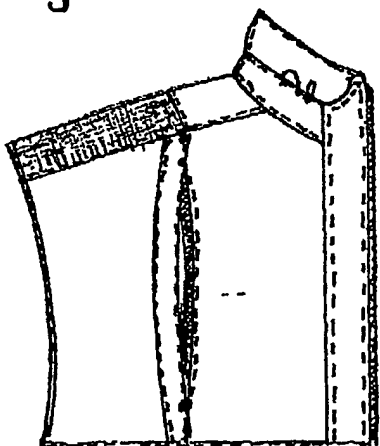
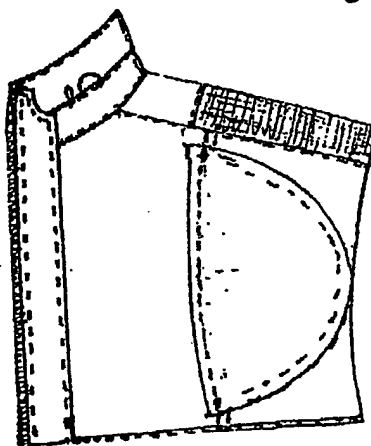
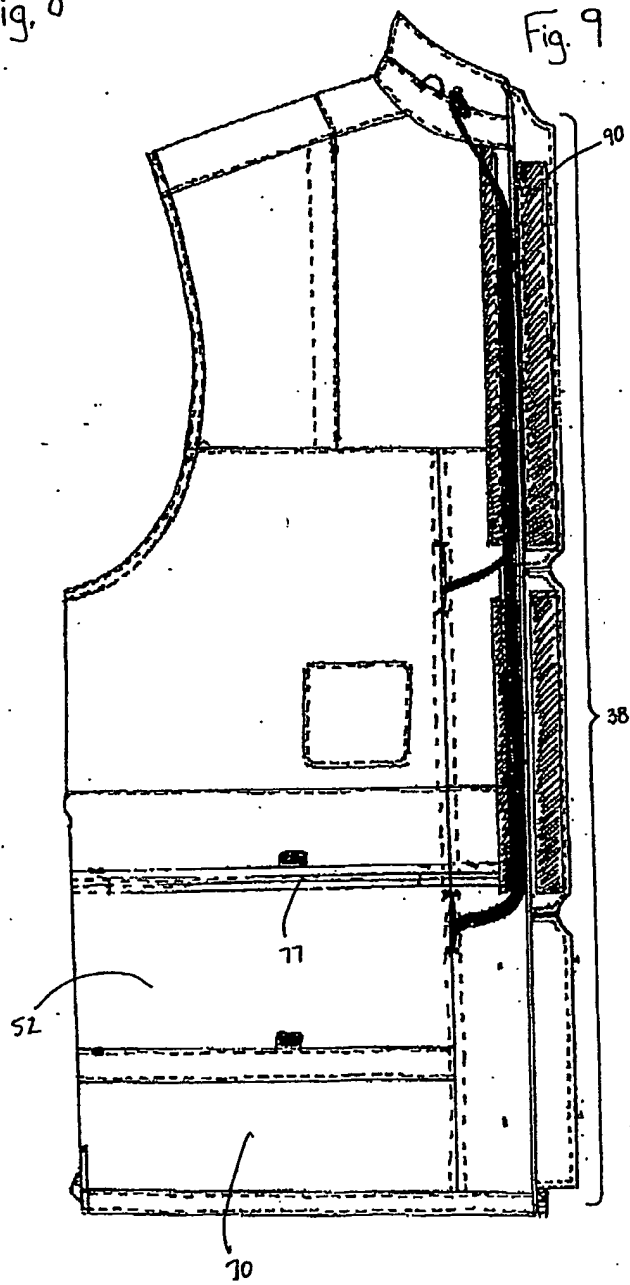
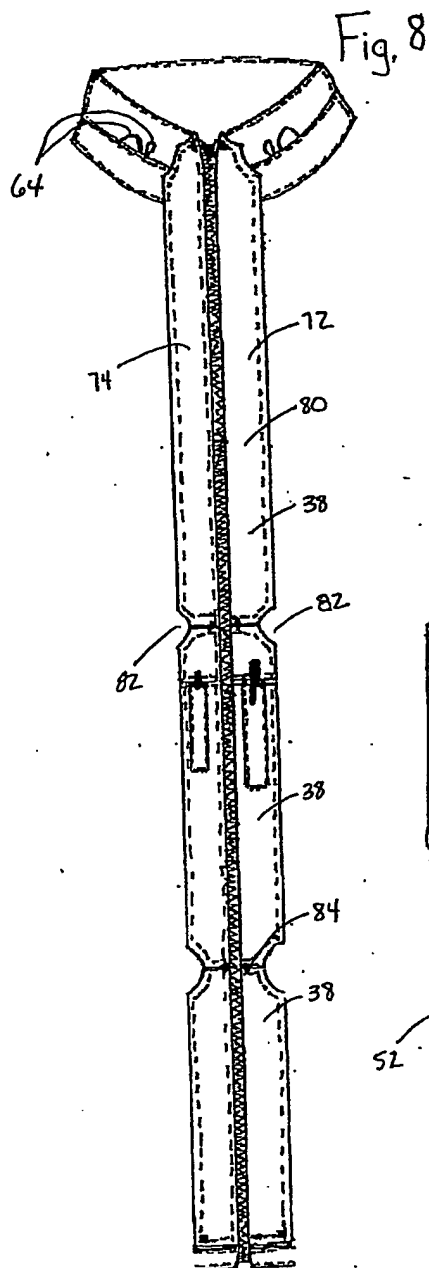


Fig. 7





INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/18087

| A. CLASSIFICATION OF SUBJECT MATTER | | |
|---|--|--|
| IPC(7) : A41D 1/04 US CL : 2/94, 102, 247-253, 108, 97, 85, 93, 69; 381/333, 301, 388 According to International Patent Classification (IPC) or to both national classification and IPC | | |
| B. FIELDS SEARCHED | | |
| Minimum documentation searched (classification system followed by classification symbols) U.S. : 2/94, 102, 247-253, 108, 97, 85, 93, 69; 381/333, 301, 388 | | |
| Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched | | |
| Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) | | |
| C. DOCUMENTS CONSIDERED TO BE RELEVANT | | |
| Category* | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | US 4,876,724 A (SUZUKI) 24 OCTOBER 1989, see entire document. | 1, 2, 5-8, and 18-19 |
| Y | US 5,509,147 A (BUSQUETS) 23 APRIL 1996, see entire document. | 3-4 and 9-10 |
| Y | US 4,539,700 A (SATO) 03 SEPTEMBER 1985, see entire document. | 17 |
| A | US 4,825,471 A (JENNINGS) 02 MAY 1989, see entire document. | 1-20 |
| A | US 5,361,412 A (PERRY) 08 NOVEMBER 1994, see entire document. | 1-20 |
| <input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex. | | |
| * Special categories of cited documents: | "T" | later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention |
| "A" document defining the general state of the art which is not considered to be of particular relevance | "X" | document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone |
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| "O" document referring to an oral disclosure, use, exhibition or other means | | |
| "P" document published prior to the international filing date but later than the priority date claimed | | |
| Date of the actual completion of the international search 09 AUGUST 2001 | Date of mailing of the international search report 19 SEP 2001 | |
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